Amendments to the Claims:

Claims 1 - 42 are currently pending with claims 17, 20, 21, and 25 having been amended and claims 33 - 42 having been added. This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) An anti-stratification-delivery system comprising:

a multi-zone-refrigeration unit having at least first and second zone temperature controllers, the first and second zone temperature controllers are capable of being set at different temperatures to establish a temperature gradient in a liquid, the temperature gradient being sufficient to cause natural thermal convection within the liquid to stir a colloid suspended in the liquid to an approximately uniform colloidal suspension; and

a delivery system configured to dispense the approximately uniform colloidal suspension.

2. (Original) The anti-stratification delivery system of claim 1 wherein the multi-zone-refrigeration unit forms a bottle cavity; and the anti-stratification delivery system further comprises a bottle disposed in the bottle cavity, the bottle configured to contain the liquid and the colloid.

3. (Original) The anti-stratification delivery system of claim 1 further comprising a thermal insulator disposed around a portion of the multi-zone-refrigeration unit, the thermal insulator configured to insulate the multi-zone-refrigeration unit from an outside atmosphere.

4. (Original) The anti-stratification delivery system of claim 1 further comprising a thermal insulator disposed between the first and second zone temperature controllers.

5. (Original) The anti-stratification delivery system of claim 1 wherein the first and second zone temperature controllers are respective first and second zone coolers.

6. (Original) The anti-stratification delivery system of claim 1 wherein the first zone temperature controller is a zone heater and the second zone temperature controller is a zone cooler.

7. (Original) The anti-stratification delivery system of claim 1 further comprising:

a thermally conductive sleeve disposed in the bottle cavity, the thermally conductive sleeve configured to be removable from the bottle cavity;

wherein the bottle is disposed in the thermally conductive sleeve.

8. (Original) The anti-stratification delivery system of claim 7 wherein the thermally conductive sleeve includes a plurality of thermally conductive portions and a set of thermal insulators disposed between the thermally conductive portions.

9. (Original) The anti-stratification delivery system of claim 1 wherein the delivery system includes

a draw tube configured to dispense the approximately uniform colloidal suspension, the draw tube having a portion disposed into the bottle and a portion extending from the bottle, and

a thermal insulator disposed around the portion of the draw tube extending from the bottle.

10. (Original) The anti-stratification delivery system of claim 1 wherein:

the first zone temperature controller includes a first housing having a first set of channels, the first set of channels being configured to carry a first coolant having a first temperature; and

the second zone temperature controller includes a second housing having a second set of channels, the second set of channels being configured to carry a second coolant having a second temperature.

11. (Original) The anti-stratification delivery system of claim 10 wherein the first and second housings are aluminum.

12. (Original) The anti-stratification delivery system of claim 10 wherein the first and second zone temperatures are independently controllable.

13. (Original) The anti-stratification delivery system of claim 1 wherein:

the first and second zone temperature controllers are disposed horizontally adjacent; and

the temperature gradient is established horizontally across the liquid.

14. (Original) The anti-stratification delivery system of claim 1 wherein:

the first and second zone temperature controllers are disposed vertically adjacent; and

the temperature gradient is established vertically within the liquid.

15. (Original) The anti-stratification delivery system of claim 1 wherein the multi-zone refrigeration unit has more than first and second zone temperature controllers configured to establish the temperature gradient.

16. (Original) The anti-stratification delivery system of claim 1 wherein the colloid and liquid form a low-k spin-on-dielectric precursor.

17. (Currently Amended) A method of dispensing a colloid in liquid, the method comprising:

establishing a temperature gradient in the liquid and the colloid, including:

setting a first temperature in a region of the liquid; and

setting a second temperature, which is different from the first temperature, in another region of the liquid;

mixing the liquid and the colloid by natural thermal ~~convention~~ convection to an approximately uniform colloidal suspension; and

dispensing through a dispensing system the approximately uniform colloidal suspension.

18. (Original) The method of claim 17 further comprising setting a maximum temperature of the temperature gradient below an upper colloid-chemical-breakdown temperature.

19. (Original) The method of claim 17 wherein the liquid and colloid form a low-k spin-on-dielectric precursor.

20. (Currently Amended) An apparatus for storing, mixing, and dispensing a liquid solution for a semiconductor processing tool, the apparatus comprising:

a housing comprising a thermally conductive material, the housing having at least first and second sections that combine to form a cavity, the first and second ~~section~~ sections being configured to be set at different temperatures;

a thermal insulator comprising a low thermal conductive material, the thermal insulator separating the first and second ~~section~~ sections of the housing;

a lid attached to the housing that is removable to allow insertion and removal of a bottle from the cavity, the lid comprising an opening to allow for the insertion of a draw tube into a bottle; and

an insulating casing that at least partially surrounds the housing.

21. (Currently Amended) The apparatus of claim [[1]] 21 further comprising a bottle suitable for containing the liquid solution.

22. (Original) The apparatus of claim 21 wherein the bottle is positioned within the cavity, a first portion of the bottle is in thermal contact with an interior surface of the

first section of the housing and a second portion of the bottle is in thermal contact with an interior surface of the second section of the housing.

23. (Original) The apparatus of claim 21 further comprising a thermal insert forming another cavity, the thermal insert being positioned within the cavity of the housing, a first portion of the thermal insert is in thermal contact with an interior surface of the first section of the housing and a second portion of the thermal insert is in thermal contact with an interior surface of the second section of the housing, wherein the bottle is positioned within the cavity of the thermal insert.

24. (Original) The apparatus of claim 20 wherein the first section of the housing comprises a first fluid passage that allows a temperature controlled fluid to be circulated throughout the first section and the second section of the housing comprises a second fluid passage that allows a temperature controlled fluid to be circulated throughout the second section, wherein the second fluid passage is fluidically isolated from the first fluid passage.

25. (Currently Amended) The apparatus of claim 20 further comprising a heater coupled to one of the first or second ~~section~~ sections of the housing and wherein the first and second ~~section~~ sections of the housing comprise a fluid passage that allows a temperature controlled fluid to be circulated throughout the first and second sections of the housing.

26. (Original) The apparatus of claim 20 wherein the housing comprises a cylindrical sidewall and a bottom.

27. (Original) The apparatus of claims 26 wherein the thermal insulator divides the housing sidewall into upper and lower vertically oriented portions with respect to the cavity, and wherein the first section of the housing comprises a bottom portion and the lower portion of the sidewall and the second section of the housing comprises the upper portion of the sidewall.

28. (Original) The apparatus of claim 26 wherein the thermal insulator divides the housing sidewall and housing bottom into left and right horizontally oriented portions with respect to the cavity and wherein the first section of the housing comprises the left portion of the sidewall and bottom, and the second section of the housing comprises the right portion of the sidewall and bottom.

29. (Original) A method for forming an integrated circuit comprising:

mixing a spin-on-dielectric (SOD) formulation by natural thermal convection including

exposing a first portion of the SOD formulation to a first temperature, and

exposing a second portion of the SOD formulation to a second temperature, the difference between the first and second temperatures is sufficient to mix the SOD formulation to an approximately uniform colloidal suspension;

dispensing the SOD formulation onto a substrate; and

forming a low-k dielectric layer from the SOD formulation.

30. (Original) The method of claim 29 wherein the forming step includes curing the SOD formulation to form the low-k dielectric layer.

31. (Original) The method of claim 30 wherein the low-k dielectric layer has a dielectric constant below about 3.0.

32. (Original) The method of claim 30 wherein the low-k dielectric layer has a dielectric constant below about 2.0.

33. (New) A method of dispensing a colloid in liquid, the method comprising:

establishing a temperature gradient in the liquid and the colloid;

setting a maximum temperature of the temperature gradient below an upper colloid-chemical-breakdown temperature;

mixing the liquid and the colloid by natural thermal convection to an approximately uniform colloidal suspension; and

dispensing through a dispensing system the approximately uniform colloidal suspension.

34. (New) The method of claim 33, wherein the liquid and colloid form a low-k spin-on-dielectric precursor.

35. (New) An anti-stratification-delivery system comprising:

a temperature-control unit having a fluid reservoir and having at least first and second temperature controllers that are configured to be set at different temperatures to establish a temperature gradient in a fluid that is disposed in the fluid reservoir, wherein the temperature gradient is sufficient to cause natural thermal convection within the fluid to stir a colloid suspended in the fluid to an approximately uniform colloidal suspension.

36. (New) The anti-stratification-delivery system of claim 35, wherein the first and second temperature controllers are configured to cool the liquid

37. (New) The anti-stratification-delivery system of claim 35, wherein the first temperature controller is configured to heat the liquid or cool the liquid, and wherein the second temperature controller is configured to heat the liquid or cool the liquid.

38. (New) The anti-stratification-delivery system of claim 35,

wherein the temperature-control unit includes at least a first wall and a second wall configured to form at least a portion of the fluid reservoir,

wherein the first temperature controller includes a first set of fluid controlled channels in the first wall,

wherein the second temperature controller includes a second set of fluid controlled channels in the second wall, and

wherein the first and second sets of fluid controlled channels are configured to establish the temperature gradient.

39. (New) The anti-stratification-delivery system of claim 38, wherein the first set of fluid controlled channels include a first fluid having a first temperature, and wherein the second set of fluid controlled channels in a second fluid having a second temperature different from the first temperature.

40. (New) The anti-stratification-delivery system of claim 39, wherein the first and second temperatures are from about -30°C to about -5°C.

41. (New) A fluid delivery system comprising:

a fluid reservoir having at least first and second temperature controllers that are configured to be set at different temperatures to establish a temperature gradient in a fluid that is disposed in the fluid reservoir, wherein the temperature gradient is sufficient to cause natural thermal convection within the fluid to stir a colloid suspended in the fluid to an approximately uniform colloidal suspension.

42. (New) The anti-stratification-delivery system of claim 1, wherein the first and second temperature controllers are configured to be set from about -30°C to about -5°C.